

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

- 1.-2. (cancelled)
3. (canceled)
4. (previously amended) A serine recombinase consisting of the amino acid sequence of SEQ ID NO: 2 wherein said amino acid sequence contains a single mutation at G101.
- 5.-46. (cancelled)
47. (currently amended) The catalytic domain according to claim [[46]] 70 wherein the mutation is G101S.
- 48.-51. (cancelled)
52. (currently amended) The catalytic domain according to claim [[46]] 70, wherein the mutations correspond to positions further comprising one or more additional mutations selected from the group consisting of E124Q, E124A [, and]] or M103I or at positions corresponding to these mutations in Tn3 resolvase (SEQ ID NO: 2).
53. (canceled)
54. (currently amended) The catalytic domain according to claim [[46]] 70 wherein the ~~one or more~~ mutations of the surface residues corresponding to a '2,3' interface R2A and E56K or correspond to positions corresponding to R2A and E56K in Tn3 resolvase of SEQ ID NO:2.
55. (canceled)
56. (canceled)
57. (currently amended) The catalytic domain according to claim [[46]] 70 wherein the mutations correspond to further comprising the mutations R2A, E56K, D102Y, M103I and Q105L or the positions corresponding to these mutations in Tn3 resolvase of SEQ ID NO:2.

58. (currently amended) The catalytic domain according to claim 57, wherein the catalytic domain ~~comprises the mutation~~ also has a mutation corresponding to V107F or the position corresponding to this mutation in Tn3 resolvase of SEQ ID NO:2.
59. (currently amended) The catalytic domain according to claim ~~[[46]]~~ 70 which is selected from the group consisting of Tn3 resolvase (SEQ ID NO:2), Sin recombinase (SEQ ID NO:5),  $\gamma\delta$  resolvase (SEQ ID NO:1), Tn 21 resolvase (SEQ ID NO:3),  $\beta$  resolvase (SEQ ID NO:4), ISXc5 resolvase (SEQ ID NO:6), Gin resolvase (SEQ ID NO:7), Hin resolvase (SEQ ID NO:8), Methanococcus jannaschii resolvase (SEQ ID NO:9), IS607 resolvase (SEQ ID NO:10), ccrA1 resolvase (SEQ ID NO: 11), TN4451 resolvase (SEQ ID NO:12), TP901-1 resolvase (SEQ ID NO:13) and  $\Phi$ C31 resolvase (SEQ ID NO:14).
- 60.-66. (cancelled)
67. (currently amended) A kit for recombining a first DNA sequence and a second DNA sequence said kit comprising a serine recombinase with the catalytic domain according to claim ~~[[46]]~~ 70.
- 68.-69. (cancelled)
70. (new) A catalytic domain of a serine recombinase which has been mutated at a position corresponding to G101 of Tn3 resolvase (SEQ ID NO: 2), wherein said catalytic domain consists of at least one additional mutation selected from the group consisting of a mutation at a position corresponding to V107, A117, A89, F92, L66, G70, M76, T109, E124, E124, M103, R2, E56, D102, Q105 and R121 of Tn3 resolvase (SEQ ID NO: 2).